APPL NO:

DATE: 07/14/2005

SEARCH STRATEGY

Set	Items	Description
S1	92189	(GROUP??? OR CLUSTER???) (3N) (LOANS OR ASSETS)
S2	12956	(UNDERWRIT??? (3N) (LOANS OR ASSETS))
S3	4025060	SEARCH
S4	802	(UNDERWRIT??? (3N) (LOANS OR ASSETS)) AND ((CLUSTER??? OR - GROUP???)(3N) (LOANS OR ASSETS))
S5	1814	((ASSIGN??? OR EVALUAT???) (5N) VALUE) (5N) (LOANS OR ASS- ETS)
S6	20	S4 AND S5
S7	16	RD S6 (unique items)
S8	0	S7 AND PY<2000

FILES SEARCHED

SHOW FILES

File 15:ABI/Inform(R) 1971-2005/Jul 14

(c) 2005 ProQuest Info&Learning

File 9:Business & Industry(R) Jul/1994-2005/Jul 13

(c) 2005 The Gale Group

File 810:Business Wire 1986-1999/Feb 28

(c) 1999 Business Wire

File 275:Gale Group Computer DB(TM) 1983-2005/Jul 14

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File 476:Financial Times Fulltext 1982-2005/Jul 14

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File 610:Business Wire 1999-2005/Jul 14

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File 624:McGraw-Hill Publications 1985-2005/Jul 14

(c) 2005 McGraw-Hill Co. Inc

File 636:Gale Group Newsletter DB(TM) 1987-2005/Jul 13

File 621:Gale Group New Prod.Annou.(R) 1985-2005/Jul 14

File 613:PR Newswire 1999-2005/Jul 14

File 813:PR Newswire 1987-1999/Apr 30

File 16:Gale Group PROMT(R) 1990-2005/Jul 13

File 160:Gale Group PROMT(R) 1972-1989

File 634:San Jose Mercury Jun 1985-2005/Jul 13

File 148:Gale Group Trade & Industry DB 1976-2005/Jul 14

File 20:Dialog Global Reporter 1997-2005/Jul 14

File 35:Dissertation Abs Online 1861-2005/Jun

File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13

File 65:Inside Conferences 1993-2005/Jul W2

File   2:INSPEC 1969-2005/Jul W1

File 474:New York Times Abs 1969-2005/Jul 13

File 475:Wall Street Journal Abs 1973-2005/Jul 13

File 99:Wilson Appl. Sci & Tech Abs 1983-2005/Jun

File 348:EUROPEAN PATENTS 1978-2005/Jun W04

File 349:PCT FULLTEXT 1979-2005/UB=20050707,UT=20050630

File 347:JAPIO Nov 1976-2005/Feb(Updated 050606)

?

APPL NO:

DATE: 07/14/2005

SEARCH STRATEGY

Set	Items	Description
S1	92189	(GROUP??? OR CLUSTER???) (3N) (LOANS OR ASSETS)
S2	12956	(UNDERWRIT??? (3N) (LOANS OR ASSETS))
S3	4025060	SEARCH
S4	802	(UNDERWRIT??? (3N) (LOANS OR ASSETS)) AND ((CLUSTER??? OR - GROUP???)(3N) (LOANS OR ASSETS))
S5	1814	((ASSIGN??? OR EVALUAT???) (5N) VALUE) (5N) (LOANS OR ASS-ETS)
S6	20	S4 AND S5
S7	16	RD S6 (unique items)
S8	0	S7 AND PY<2000

FILES SEARCHED

7/3,K/1   (Item 1 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2005 The Gale Group. All rts. reserv.

16674580   SUPPLIER NUMBER: 111306869   (USE FORMAT 7 OR 9 FOR FULL TEXT
)
Financial and business statistics.
Federal Reserve Bulletin, 89, 11, A1(68)
Nov, 2003
ISSN: 0014-9209   LANGUAGE: English   RECORD TYPE: Fulltext
WORD COUNT: 20998   LINE COUNT: 10019

...   pp. A17-19 are
   adjusted to remove the estimated effects of mergers between these two
    groups . The adjustment for mergers changes past levels to make them
   comparable with current levels. Estimated...
50   50   50
   15 Short sales   55   65   50

   (1.) In July 1976 a financial group , composed of banks and insurance
   companies, was added to the group of stocks on which...converted.

   (8.) Includes participation loans as well as whole loans.

   (9.) Includes conventional and government- underwritten   loans . The
   Federal Home Loan Mortgage Corporation's mortgage commitments and
   mortgage transactions include activity under...

   7/3,K/2   (Item 2 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2005 The Gale Group. All rts. reserv.

15604299   SUPPLIER NUMBER: 98755074   (USE FORMAT 7 OR 9 FOR FULL TEXT)
   Financial and business statistics.(Illustration)
Federal Reserve Bulletin, 89, 2, A1(69)
Feb, 2003
DOCUMENT TYPE: Illustration   ISSN: 0014-9209   LANGUAGE: English
RECORD TYPE: Fulltext
WORD COUNT: 21567   LINE COUNT: 09927

...   industries (14)   6.93   6.73   6.93   6.88

      Rating group
   28 Aaa (15)   6 .37   6.15   6.15   6.32
   29 Aa   6.84   6.63   6.63...issues, all
      industries (14)   7.00   6.93   6.81

      Rating group
   28 Aaa (15)   6 .39   6.32   6.22
   29 Aa   6.78   6.72   6.64
   30 A...loans as well as whole loans.

   (9.) Includes conventional and government-underwritten loans. The
   Federal Home   Loan Mortgage Corporation's mortgage commitments and
   mortgage transactions include activity under mortgage securities
   swap programs...

7/3,K/3   (Item 3 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB

14960916   SUPPLIER NUMBER: 91213347   (USE FORMAT 7 OR 9 FOR FULL TEXT)
 Financial and business statistics.(Statistical Data Included)
Federal Reserve Bulletin, 88, 8, A1(69)
August, 2002
DOCUMENT TYPE: Statistical Data Included   ISSN: 0014-9209
LANGUAGE: English   RECORD TYPE: Fulltext
WORD COUNT: 24257   LINE COUNT: 12116

...   50
    15 Short sales   65   50

      (1.) In July 1976 a financial group, composed of banks and insurance
      companies, was added to the group of stocks on which the index is...
share issue of conversions from one fund to another
      in the same group.

      (3.) Excludes sales
 and redemptions resulting from transfers of shares
      into or out of money market mutual funds...
participation loans as well as whole loans.

      (9.) Includes conventional and government-underwritten loans. The
       Federal   Home Loan Mortgage Corporation's mortgage commitments and
      mortgage transactions include activity under mortgage securities
      swap...

   7/3,K/4   (Item 4 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB

14600582   SUPPLIER NUMBER: 86128852   (USE FORMAT 7 OR 9 FOR FULL TEXT)
 Financial and business statistics.(tables)(Statistical Data Included)
Federal Reserve Bulletin, 88, 5, A1(75)
May, 2002
DOCUMENT TYPE: Statistical Data Included   ISSN: 0014-9209
LANGUAGE: English   RECORD TYPE: Fulltext
WORD COUNT: 23733   LINE COUNT: 10891

...   of conversions from one
      fund to another in the same group.

      (3.) Excludes sales and redemptions resulting from transfers
      of shares into or out of money market mutual funds within the...
as well as whole loans.

      (9.) Includes conventional and government-underwritten loans. The
      Federal Home Loan Mortgage Corporation's mortgage commitments and
      mortgage transactions include activity under mortgage securities swap
      programs, whereas...

   7/3,K/5   (Item 5 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB

13700592   SUPPLIER NUMBER: 76403695   (USE FORMAT 7 OR 9 FOR FULL TEXT)
 **Financial and Business Statistics.(industry information and data)(Brief
 Article)(Industry Overview)(Statistical Data Included)**
Federal Reserve Bulletin, 86, 11, A1
Nov, 2000
DOCUMENT TYPE: Brief Article Industry Overview Statistical Data Included
    ISSN: 0014-9209   LANGUAGE: English   RECORD TYPE: Fulltext
WORD COUNT: 25293   LINE COUNT: 12564

...   distributions and share issue of conversions from one fund
    to another in the same group.

    (3
.) Excludes sales and redemptions resulting from transfers of shares
    into or out of money market...
Includes participation loans as well as whole loans.

    (9.) Includes conventional and government-underwritten loans.
    The   Federal Home Loan Mortgage Corporation's mortgage commitments
    and mortgage transactions include activity under mortgage
    securities...

    7/3,K/6   (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
(c) 2005 WIPO/Univentio. All rts. reserv.

00816848   **Image available**
 **CROSS CORRELATION TOOL FOR AUTOMATED PORTFOLIO DESCRIPTIVE STATISTICS
 OUTIL DE CORRELATION CROISEE POUR STATISTIQUES DESCRIPTIVES AUTOMATISEES
    CONCERNANT DES PORTEFEUILLES**
Patent Applicant/Assignee:
  GE CAPITAL COMMERCIAL FINANCE INC, 201 High Ridge Road, Stamford, CT
    06927-5100, US, US (Residence), US (Nationality)
Inventor(s):
  EDGAR Marc T, 1015 Foxwood Drive, Clifton Park, NY 12065, US,
  JOHNSON Christopher D, 17 Berkshire Drive W, Clifton Park, NY 12065, US,
Legal Representative:
  BENINATI John F (et al) (agent), General Electric Company, 3135 Easton
    Turnpike W3C, Fairfield, CT 06431, US,
Patent and Priority Information (Country, Number, Date):
    Patent: WO 200150388 A2 20010712 (WO 0150388)
    Application: WO 2000US35530 20001228 (PCT/WO US0035530)
    Priority Application: US 99173794 19991230
Designated States:
(Protection type is "patent" unless otherwise stated - for applications
prior to 2004)
    AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH
    GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN
    MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW
    (EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
    (OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
    (AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
    (EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 13974

Fulltext Availability:

Detailed Description
Claims

Detailed Description
... the seller of assets wants to optimize the value of the portfolio, and
will sometimes group the assets in "tranches." The term "tranche" as
used herein is not limited to foreign notes but...

...the time for submitting a bid is about to expire, the bidder will
evaluate the assets underwritten at that time, and then attempt to
extrapolate a value to the assets that have...data reduction are used in
valuing the third portion.

As the process proceeds and more assets are underwritten , the number
of assets with values established in the first and second portions
increase and the number of assets...

...more and more defined. More specifically, the assets in the third
portion are evaluated by grouping the assets into clusters having
probability of value based on similarity to valuations of assets in the
first and...

...of occurrence for levels or bins of individual attribute variables and
pairs of attribute variables, grouping the assets according to the
value of a response variable or frequency of occurrence of the individual
...

...I is a diagram 10 illustrating a known process for valuing a
large portfolio of assets 12 through an underwriting cycle and
through to making a bid for purchasing asset portfolio 12, for example,
in...

...an underwritten first portion 16 and an untouched remainder portion 18.
Before any of the assets are underwritten , first portion 16 is zero
percent and remainder portion 18 is one hundred percent of...

...process progresses, first portion 16 increases and remainder portion 18
decreases. The objective is to underwrite as many assets as possible
before a bid is submitted for the purchase of asset portfolio. The team
...

...tranches for bidding purposes (as described below.) As in diagram IO,
underwriters begin a full underwrite 14 of individual assets in
portfolio 12 to produce a fully underwritten first portion 16 of assets
. Underwriters also underwrite 34 a sample of assets in a second
portion 36 of portfolio 12, and a...so well known or so reliable that the
assets can be quickly and reliably fully underwritten or the assets
are marked to market such that there is very little variance associated
with the value...

...into any full sampling group valuation 1 18 required for bidding as
suggested by the grouping of assets in a tranche.

The number of assets in an underwriting sample grouping can be as
little as one to any number of assets. Partial sampling...on an ongoing,
real time basis. Supervised learning process 206 uses business rules to
identify clusters of assets having common aspects for valuation
purposes.

Unsupervis6d learning process 208 uses feedback from prior data...of

statistically inferred valuation 142 by correlating to established
criteria 80 in database 76 on assets in fully underwritten first
portion 16 and assets in sample underwritten second portion 36.
Selected data 78 related to one or more assets in third portion...

...selectable by the analysts conducting the evaluation and is further
described below. If the seller groups the assets , then grouping
according to seller groups or tranches is easily made and an appropriate
valuation 146 developed...the best method has been employed.

In order to provide the best forecast of asset value , assets are
evaluated by each method within a food chain until such time as they are
valued by...not homogeneous, a method to establish the
variability of cash flow recoveries is provided. Individual assets are
clustered by group exposure. As much 1111ce value as possible is
traditionally underwritten in the time permitted, recognizing...the
encoded asset attributes in such a way so as to segment the portfolio
into groups of similar assets . One such algorithm is K-means
clustering.

In an example, where three asset attributes, Unpaid...sample size is
derived.

Table B provides an example output from a study of a group of 20
 loans , with estimated (expected) recoveries between 201/o and 30% of
UPB, and a range of...flow diagram illustrating a process 2 1 0 for
automated underwriting of segmentable financial instrument assets .
First clusters of financial instruments are defined 212 by common
attributes. An expert opinion 214 of value...

...selects and sets 220 the individual attributes to be used and then
classifies 222 individual assets into clusters . Cluster valuation
is applied 224 to each cluster asset. Using the cluster valuation, the
values are...

...is then supplied to the individual asset values in credit analyst table
136 for the assets from the clusters being adjusted in procedure 40
to produce adjusted credit analyst table 140. The process is...
...underwriting, partial underwriting and inferred valuation. First, assets
are sampled 242 according to risk. Second, assets are underwritten
244, and valuations recorded. Third, market value clusters are formed
246, such as by FCM, as described below. Fourth, regression models are
built 248, for the underwritten assets .

A best model is selected 250, for the underwritten assets from among
those built 248 earlier. Sixth, the counts for the selected models are
calculated...

...a manner weighted by the counts to predict individual values for each of
the non- underwritten assets . The individual asset values produced
according to process 240 are then placed in adjusted credit analyst
table 140 (see Figure 3).

In sampling assets 242, underwriters use stratified random sampling
to
select assets for detailed review. Strata are constructed from collateral
...

...a largely manual process in which expert
underwriters ascribe a notion of worth to collateral assets . The

underwritten valuations are stored in a master database table, such as
database 76 (shown in Figure...

...an analysis using a Classification And Regression Tree ("CART") based
model, which results in a grouping of UW assets by Collateral Usage
and Market Value ("CUMV") groups, using Previous Appraisal Amount ("PAA")
as the...shown in Figure 3) performs this process. Model building 248 is
used to assist the underwriter in prioritizing assets for full
underwriting 14 and samplebased underwriting 34, as well as for
inferential valuation.

The lower portion of...behavior. Unsupervised learning step 208, employs
a fuzzy clustering method ("FCM") and knowledge engineering to group
assets automatically for valuation. FCM is a known method that has been
widely used and applied...one exemplary embodiment 25% of the assets and
60% of the face value of all assets . Full underwriting of these
assets is warranted due to their size and value. However, this
underwriting is fairly uniform for...

Claim
... of occurrence
  for levels or bins of individual attribute variables and pairs of
  attribute variables;
   grouping the assets according to the value of a response variable or
  frequency of occurrence of the individual...

...x2 are continuous variables.
  . A method (32) according to Claim 1 wherein said step of
   grouping the assets further comprises the step of computing an
  average for a response variable for all combinations...of occurrence for
  levels or bins of individual attribute variables and pairs of attribute
  variables;
   group the assets according to the value of a response variable or
  frequency of occurrence of the individual...

...of occurrence for
  levels or bins of individual attribute variables and pairs of attribute
  variables;
   group the assets according to the value of a response variable or
  frequency of occurrence of the individual...

  7/3,K/7   **(Item 2 from file: 349)**
DIALOG(R)File 349:PCT FULLTEXT

00816840   **Image available**
  METHODS AND APPARATUS FOR SIMULATING COMPETITIVE BIDDING YIELD
  PROCEDES ET APPAREIL DE SIMULATION DU RENDEMENT D'OFFRES CONCURRENTIELLES
Patent Applicant/Assignee:
  GE CAPITAL COMMERCIAL FINANCE INC, 201 High Ridge Road, Stamford, CT
    06927-5100, US, US (Residence), US (Nationality)
Inventor(s):
  MESSMER Richard P, 735 Riverview Road, Rexford, NY 12148, US,
  EDGAR Marc T, 1015 Foxwood Drive, Clifton Park, NY 12065, US,
  CIFARELLI James L, Apartment #3, 2146 Rosa Road, Schenectady, NY 12309,
    US,
  AKBAY Kunter S, 2337 Knolls View Drive, Niskayuna, NY 12309, US,
  JOHNSON Christopher D, 17 Berkshire Drive W., Clifton Park, NY 12065, US,

Fulltext Availability:
  Detailed Description

Detailed Description
... the seller of assets wants to optimize the value of the portfolio, and
   will sometimes group the assets in "tranches." The term "tranche" as
   used herein is not limited to foreign notes but...
...the time for submitting a bid is about to expire, the bidder will
   evaluate the loans underwritten at that time, and then attempt to
   extrapolate a value to the loans that have...data reduction are used in
   valuing the third portion.

   As the process proceeds and more assets are underwritten , the number
   of assets in the first and second portions increase and the number of
   assets in the third...

...more and more defined. More specifically, the assets in the third
   portion are evaluated by grouping the assets into clusters based on
   similarity to valuations of assets in the first and second portions.
   Hypothetical bids...is a diagram 1 0 illustrating a known process for
   valuing a
   large portfolio of assets 12 through an underwriting cycle and
   through to making a bid for purchasing asset portfolio 12, for example,
   in...

...an underwritten first portion 16 and an untouched remainder portion 18,
   Before any of the assets are underwritten , first portion 16 is zero
   percent and remainder portion 18 is one hundred percent of...
...process progresses, first portion 16 increases and remainder portion 18
   decreases. The objective is to underwrite as many assets as possible
   before a bid is submitted for the purchase of asset portfolio. The team
   ...

...tranches for bidding purposes (as described below.) As in diagram IO,
   underwriters begin a full underwrite 14 of individual assets in
   portfolio 12 to produce a fully underwritten first portion 16 of assets
   . Underwriters also underwrite 34 a sample of assets in a second
   portion 36 of portfolio 12, and a...so well known or so reliable that the

assets can be quickly and reliably fully underwritten or the assets are marked to market such that there is very little variance associated with the value...

...any full sampling group valuation I 1 8 required for bidding as suggested by the grouping of assets in a tranche.

The number of assets in an underwriting sample grouping can be as little as one to any number of assets. Partial sampling...on an ongoing, real time basis.

Supervised learning process 206 uses business rules to identify clusters of assets having common aspects for valuation purposes. Unsupervised learning process 208 uses feedback from prior data...accuracy of statistically inferred valuation 142 by correlating to established criteria 80 in database on assets in fully underwritten first portion 16 and assets in sample underwritten second portion 36. Selected data 78 related to one or more assets in third portion...

...selectable by the analysts conducting the evaluation and is further described below. If the seller groups the assets , then grouping according to seller groups or tranches is easily made and an appropriate valuation 146 developed...the best method has been employed.

In order to provide the best forecast of asset value , assets are evaluated by each method within a food chain until such time as they are valued by...not homogeneous, a method to establish the variability of cash flow recoveries is provided. Individual assets are clustered by group exposure. As much face value as possible is traditionally underwritten in the time permitted, recognizing...the encoded asset attributes in such a way so as to segment the portfolio into groups of similar assets . One such algorithm is K-means clustering.
In an example, where three asset attributes, Unpaid...sample size is derived.

Table B provides an example output from a study of a group of 20 loans , with estimated (expected) recoveries between 20% and 30% of UPB, and a range of UPB...a flow diagram illustrating a process 21 0 for automated underwriting of segmentable financial instrument assets . First clusters of financial instruments are defined 212 by common attributes. An expert opinion 214 of value...selects and sets 220 the individual attributes to be used and then classifies 222 individual assets into clusters . Cluster valuation is applied 224 to each cluster asset. Using the cluster valuation, the values are...

...is then supplied to the individual asset values in credit analyst table 136 for the assets from the clusters being adjusted in procedure 40 to produce adjusted credit analyst table 140. The process is...

...underwriting, partial underwriting and inferred valuation. First, assets are sampled 242 according to risk. Second, assets are underwritten 244, and valuations recorded. Third, market value clusters are formed 246, such as by FCM, as described below. Fourth, regression models are built 248, for the underwritten assets .
A best model is selected 250, for the underwritten assets from among those built 248 earlier. Sixth, the counts for the selected models are calculated...

...a manner weighted by the counts to predict individual values for each of

the non- underwritten   assets . The individual asset values produced
according to process 240 are then placed in adjusted credit analyst table
140 (see Figure 3).

In sampling assets 242, underwriters use stratified random sampling
to
select assets for detailed review. Strata are constructed from collateral
...a largely manual process in which expert
underwriters ascribe a notion of worth to collateral assets . The
underwritten valuations are stored in a master database table, such as
database 76 (shown in Figure...

...an analysis using a Classification And Regression Tree ("CART") based
 model, which results in a grouping of UW assets by Collateral Usage
 and Market Value ("CUMV") groups, using Previous Appraisal Amount ("PAA")
 as the...shown in Figure 3) performs this process. Model building 248 is
 used to assist the underwriter in prioritizing assets for full
 underwriting 14 and sample-based underwriting 34, as well as for
 inferential valuation.

The lower portion...behavior. Unsupervised learning step 208, employs a
ftizzy clustering method ("FCM") and knowledge engineering to group
assets automatically for valuation. FCM is a known method that has been
widely used and applied...one exemplary embodiment 25% of the assets and
60% of the face value of all assets . Full underwriting of these
assets is warranted due to their size and value. However, this
underwriting is fairly uniform for...

7/3,K/8   (Item 3 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00816815   **Image available**
METHODS AND APPARATUS FOR RAPID DEPLOYMENT OF A VALUATION SYSTEM
PROCEDES ET DISPOSITIF POUR LE DEPLOIEMENT RAPIDE D'UN SYSTEME D'EVALUATION
Patent Applicant/Assignee:
  GE CAPITAL COMMERCIAL FINANCE INC, 201 High Ridge Road, Stamford, CT
    06927-5100, US, US (Residence), US (Nationality)
Inventor(s):
  DINGMAN Brian N, 284 Woods Hollow Road, Gloversville, NY 12078, US,
  MESSMER Richard P, 735 Riverview Road, Rexford, NY 12148, US,
  EDGAR Marc T, 1015 Foxwood Drive, Clifton Park, NY 12065, US,
  JOHNSON Christopher D, 17 Berkshire Drive W., Clifton Park, NY 12065, US,

Legal Representative:
  BENINATI John F (et al) (agent), General Electric Company, 3135 Easton
    Turnpike W3C, Fairfield, CT 06431, US,
Patent and Priority Information (Country, Number, Date):
  Patent: WO 200150348 A2 20010712 (WO 0150348)
  Application: WO 2000US34916 20001221 (PCT/WO US0034916)
  Priority Application: US 99173695 19991230; US 2000741211 20001219
Designated States:
(Protection type is "patent" unless otherwise stated - for applications
prior to 2004)
  AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH
  GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN
  MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW
  (EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
  (OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

Fulltext Availability:
  Detailed Description
  Claims

Detailed Description
...   the seller of assets wants to optimize the value of the portfolio, and
   will sometimes group the assets in "tranches." The term "tranche" as
   used herein is not limited to foreign notes but...

...the time for submitting a bid is about to expire, the bidder will
   evaluate the loans   underwritten at that time, and then attempt to
   extrapolate a value to the loans that have...I is a diagram 10
   illustrating a known process for valuing a
   large portfolio of assets 12 through an underwriting cycle and
   through to making a bid for purchasing asset portfolio 12, for example,
   in...

...an underwritten first portion 16 and an untouched remainder portion 18.
   Before any of the assets are underwritten , first portion 16 is zero
   percent and remainder portion 18 is one hundred percent of...

...process progresses, first portion 16 increases and remainder portion 18
   decreases. The objective is to underwrite as many assets as possible
   before a bid is submitted for the purchase of asset portfolio. The team
   ...

...tranches for bidding purposes (as described below.) As in diagram 10,
   underwriters begin a full underwrite 14 of individual assets in
   portfolio 12 to produce a fully underwritten first portion 16 of assets
   . Underwriters also underwrite 34 a sample of assets in a second
   portion 36 of portfolio 12, and a...so well known or so reliable that the
   assets can be quickly and reliably fully underwritten or the assets
   are marked to market such that there is very little variance associated
   with the value...

...any full sampling group valuation I 1 8 required for bidding as
   suggested by the grouping of assets in a tranche.

   The number of assets in an underwriting sample grouping can be as
   little as one to any number ...on an ongoing, real time basis.

   Supervised teaming process 206 uses business rules to identify clusters
   of assets having common aspects for valuation purposes. Unsupervised
   teaming process 208 uses feedback from prior data...

Claim
...   of statistically inferred valuation 142 by correlating to established
   criteria 80 in database 76 on assets in fully underwritten first
   portion 16 and assets in sample underwritten second portion 36.
   Selected data 78 related to one or more assets in third portion...

...selectable by the analysts conducting the evaluation and is further
   described below. If the seller groups the assets , then grouping
   according to seller groups or tranches is easily made and an appropriate

valuation 146 developed...the best method has been employed. In order to provide the best forecast of asset value , assets are evaluated by each method within a food chain until such time as they are valued by... not homogeneous, a method to establish the variability of cash flow recoveries is provided. Individual assets are clustered by group exposure. As much face value as possible is traditionally underwritten in the to time permitted...the encoded asset attributes in such a way so as to segment the portfolio into groups of similar assets . One such algorithm is K-means clustering. In an example, where three asset attributes, Unpaid...sample size is derived.' Table B provides an example output from a study of a group of 20 loans , with estimated (expected) recoveries between 20% and 30% of UPB, and a range of UPB...is a flow diagram illustrating a process 210 for automated underwriting of segmentable financial instrument assets . First clusters of financial instruments are defined 212 by common attributes. An expert opinion 214 of value...

...selects and sets 220 the individual attributes to be used and then classifies 222 individual assets into clusters . Cluster valuation is applied 22 4 to each cluster asset. Using the cluster valuation, the values...

...is then supplied to the individual asset values in credit analyst table 136 for the' assets from the clusters being adjusted in procedure 40 to produce adjusted credit analyst table 140. The process is...

...underwriting, partial underwriting and inferred valuation. First, assets are sampled 242 according to risk. Second, assets are underwritten 244, and valuations recorded. Third, market value clusters are formed 246, such as by FCM, as described below. Fourth, regression models are built 248, for the underwritten assets . A best model is selected 250, for the underwritten assets from among those built 248 earlier. Sixth, the counts for the selected models are calculated...
...a manner weighted by the counts to predict individual values for each of the non- underwritten assets . The individual asset values produced according -10 to process 240 are then placed in adjusted credit analyst table 140 (see Figure 3).
In sampling assets 242, underwriters use stratified random sampling to
select assets for detailed review. Strata are constructed from collateral
...a largely manual process in which expert
underwriters ascribe a notion of worth to collateral assets . The underwritten valuations are stored in a master database table, such as database 76 (shown in Figure...

...an analysis using a Classification And Regression Tree ("CART") based model, which results in a
grouping of U`W assets by Collateral Usage and Market V

alue ("CUMV") groups,
using Previous Appraisal Amount ("PAA") as...shown in Figure 3) performs this process. Model building 248 is used to assist the underwriter in prioritizing assets for full underwriting 14 and sample-based underwriting 34, as well as for inferential valuation.
The lower portion...behavior. Unsupervised learning step 208, employs a fuzzy clustering method ("FCM") and knowledge engineering to group assets automatically for valuation. FCM is a known method that has been widely used and applied...one exemplary embodiment 25% of the assets and 60% of the face value of all assets . Full underwriting of these assets is warranted due to their size and value. However, this

underwriting is fairly uniform for...

7/3,K/9   (Item 4 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00816792   **Image available**
VALUATION PREDICTION MODELS IN SITUATIONS WITH MISSING INPUTS
MODELES DE PREVISION D'EVALUATION DANS DES SITUATIONS AVEC ENTREES MANQUANTES
Patent Applicant/Assignee:
  GE CAPITAL COMMERCIAL FINANCE INC, 201 High Ridge Road, Stamford, CT
    06927-5100, US, US (Residence), US (Nationality)
Inventor(s):
  KEYES Tim K, 16 Topledge Road, West Redding, CT 06896, US,
Legal Representative:
  BENINATI John F (et al) (agent), General Electric Company, 3135 Easton
    Turnpike W3C, Fairfield, CT 06431, US,
Patent and Priority Information (Country, Number, Date):
  Patent: WO 200150322 A2 20010712 (WO 0150322)
  Application: WO 2000US35369 20001227 (PCT/WO US0035369)
  Priority Application: US 99173875 19991230
Designated States:
(Protection type is "patent" unless otherwise stated – for applications
prior to 2004)
  AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH
  GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN
  MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW
  (EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
  (OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
  (AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
  (EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 14188

Fulltext Availability: ·
  Detailed Description
  Claims

Detailed Description
... the seller of assets wants to optimize the value of the portfolio, and
  will sometimes group the assets in "tranches." The term "tranche" as
  used herein is not limited to foreign notes but...

...the time for submitting a bid is about to expire, the bidder will
  evaluate the loans underwritten at that time, and then attempt to
  extrapolate a value to the loans that have...data reduction are used in
  valuing the third portion.
  As the process proceeds and more assets are underwritten , the number
  of assets in the first and second portions increase and the number of
  assets in the third...

...more and more defined. More specifically, the assets in the third
  portion are evaluated by grouping the assets into clusters based on
  similarity to valuations of assets in the first and second portions.

  A method for predicting value of non- underwritten assets for which
  data representations are partial or incomplete by projecting values onto

the nonunderwritten assets from at least one of fully underwritten assets , other nonunderwritten assets with complete data representations and available data from nonunderwritten assets with partial or incomplete data representations having similar identifiable characteristics is disclosed. The method includes the steps of sampling assets according to risk, underwriting assets and recording valuations, forming market value clusters, building regression models for underwritten assets , selecting the best models for the underwritten assets , counting a number of times the models are selected and using the selected model to make a prediction of underwriting value for the non- underwritten assets .

BRIEF DESCRIPTION OF THE DRAWINGS

Figure I is a flow diagram illustrating a known process process for valuing a
large portfolio of assets 12 through an underwriting cycle and through to making a bid for purchasing asset portfolio 12, for example, in...

...an underwritten first portion 16 and an untouched remainder portion 18. Before any of the assets are underwritten , first portion 16 is zero percent and remainder portion 18 is one hundred percent of...

...process progresses, first portion 16 increases and remainder portion 18 decreases. The objective is to underwrite as many assets as possible before a bid is submitted for the purchase of asset portfolio, The team ...

...tranches for bidding purposes (as described below.) As in diagram 10, underwriters begin a full underwrite 14 of individual assets in portfolio 12 to produce a fully underwritten first portion 16 of assets . Underwriters also underwrite 34 a sample of assets in a second portion 36 of portfolio 12, and a...so well known or so reliable that the assets can be quickly and reliably fully underwritten or the assets are marked to market such that there is very little variance associated with the value...

...into any fall sampling group valuation II 8 required for bidding as suggested by the grouping of assets in a tranche.

The number of assets in an underwriting sample grouping can be as little as one to any number of assets. Partial sampling...on an ongoing, real time basis. Supervised learning process 206 uses business rules to identify clusters of assets having common aspects for valuation purposes, Unsupervised learning process 208 uses feedback from prior data ...accuracy of statistically inferred valuation 142 by correlating to established criteria 80 in database on assets in fully underwritten first portion 16 and assets in sample underwritten second portion 36. Selected data 78 related to one or more assets in third portion...

...selectable by the analysts conducting the evaluation and is further described below. If the seller groups the assets , then grouping according to seller groups or tranches is easily made and an appropriate valuation 146 developed...method has been employed.

I 0 In order to provide the best forecast of asset value , assets are evaluated by each method within a food chain until such time as they are valued by...not homogeneous, a method to establish the variability of cash flow recoveries is provided. Individual assets are clustered by group exposure. As much face value as possible is traditionally underwritten in the time permitted, recognizing...the

encoded asset attributes in such a way so as to segment the portfolio into groups of similar assets . One such algorithm is K-means clustering.

In an example, where three asset attributes, Unpaid...sample size is derived.

Table B provides an example output from a study of a group of 20 loans , with estimated (expected) recoveries between 20% and 30% of UPB, and a range of UPB...flow diagram illustrating a process 2 1 0 for automated underwriting of seginentable financial instrument assets . First clusters of financial instruments are defined 212 ...selects and sets 220 the individual attributes to be used and then classifies 222 individual assets into clusters . Cluster valuation is applied 224 to each cluster asset. Using the cluster valuation, the values are...

...is then supplied to the individual asset values in credit analyst table 136 for the assets from the clusters being adjusted in procedure 40 to produce adjusted credit analyst table 140. The process is...

...underwriting, partial underwriting and inferred valuation. First, assets are sampled 242 according to risk. Second, assets are underwritten 244, and valuations recorded. Third, market value clusters are formed 246, such as by FCM, as described below. Fourth, regression models are built 248, for the underwritten assets .

A best model is selected 250, for the underwritten assets from among those built 248 earlier. Sixth, the counts for the selected models are calculated...

...a manner weighted by the counts to predict individual values for each of the non- underwritten assets . The individual asset values produced according to process 240 are then placed in adjusted credit analyst table 140 (see Figure 3).

In sampling assets 242, underwriters use stratified random sampling to
select assets for detailed review. Strata are constructed from collateral
...a largely manual process in which expert
underwriters ascribe a notion of worth to collateral assets . The
underwritten valuations are stored in a master database table, such as
database 76 (shown in Figure...

...perform an analysis using a classification and regression tree based model, which results in a grouping of UW assets by Collateral Usage and Market Value ("CUMV") groups, using Previous Appraisal Amount ("PAA") as the...shown in Figure 3) performs this process. Model building 248 is used to assist the underwriter in prioritizing assets for full underwriting 14 and samplebased underwriting 34, as well as for inferential valuation.

The lower portion of...behavior. Unsupervised learning step 208, employs a fuzzy clustering method ("FCM") and knowledge engineering to group assets automatically for valuation. FCM is a known method that has been widely used and applied...one exemplary embodiment 25% of the assets and 60% of the face value of all assets . Full underwriting of these assets is warranted due to their size and value. However, this underwriting is fairly uniform for...

Claim

1 . A method (240) for predicting value of non- underwritten assets
for which data representations are partial or incomplete by projecting
values onto the non- underwritten assets from at least one of fully
underwritten assets , other nonunderwritten assets with complete data
representations and available data from nonunderwritten assets with
partial or incomplete data representations having similar identifiable
characteristics, said method comprising the steps of
sampling (242) assets according to risk;
 underwriting (244) assets and recording valuations;
forming (246) market value clusters;
building (248) regression models for underwritten assets ;
selecting (250) the best models for the underwritten assets ;
counting (252) a number of times the models are selected; and
using (254) the selected model to make a prediction of underwriting
value for the non- underwritten assets .
1 5 2. A method (240) according to Claim 1 wherein said step of
sampling...

...previous appraisal amount.
3 A method (240) according to Claim I wherein said step of
 underwriting (244) assets and recording valuations further comprises
the step of storing valuations in a master database (76...

...and regression tree analysis using previous appraisal amount as a
driving variable, resulting in a grouping of assets according to
collateral usage and market value groups.

5 A method (240) according to Claim I wherein said step of
building (248) regression models for underwritten assets further
comprises the step of building models which use as variables different
groupings of data...

...according to Claim 5 wherein said step of
selecting (250) the best models for the underwritten assets further
comprises the step of selecting models according to minfabs(y - @,),
jE9'j, where y...

...of counting a number of times each model produced a best prediction for
1 5 underwriting of assets .

8 A method (240) according to Claim I wherein said step of
using the selected (250) model to make a prediction of underwriting value
for the non- underwritten assets further comprises the step of
predicting underwriting value
according to
E I1kf1jJ1k
i,j,k...substituting a corresponding statistic for @Ik

11 A system (300) for predicting value of non- underwritten assets
for which data representations are partial or incomplete by projecting
values onto the non- underwritten assets from at least one of fully
underwritten assets , other nonunderwritten assets with complete data
representations and available data from nonunderwritten assets with
partial or incomplete data...

...client system connected to said server through a network,
said server configured to sample (242) assets according to risk,
underwrite (244) assets and record valuations, form (246) market value
clusters, build (248) regression models for underwritten assets ,
select (250) the best models for the underwritten assets , count (252)

a number of times the models are selected and use (254) the selected
model to make a prediction of underwriting value for the non-
underwritten
 assets ,

12 A system (300) according to Claim I 1 wherein said server
(302) configured to...

...regression tree analysis using a previous appraisal amount as a driving
variable, resulting 'in a grouping of assets according to collateral
usage and market value groups.

15 A system (300) according to Claim...

...configured to count (252) a number of times each model produced a best
prediction for underwriting of assets .
1 5 18. A system (300) according to Claim I I wherein said server
(302...assets for which data representations are partial or incomplete by
projecting values onto the non- underwritten assets from at least one
of fully underwritten assets , other non- underwritten assets with
complete data representations and available data from non- underwritten
assets with partial or incomplete data representations having similar
identifiable characteristics, said computer including a
database (76) of asset portfolios (12), said computer programmed to:
sample assets according to risk;
 underwrite assets and record valuations;
form market value clusters;
build regression models for underwritten assets ;
select the best models for the underwritten assets ;
count a number of times the models are selected; and
use the selected model to make a prediction of underwriting value for
the non- underwritten assets .

22 A computer (38) according to Claim 21 programmed to select
assets from a list...

...regression tree analysis using a previous appraisal amount as a driving
variable, resulting in a grouping of assets according to collateral
usage and market value groups.

25 A computer (38) according to Claim...

...programmed to count
(252) a number of times each model produced a best prediction for
underwriting of assets .

28 A computer (38) according to Claim 21 programmed to predict
underwriting value according to...

   7/3,K/10   (Item 5 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00816789   **Image available**
 **METHODS AND SYSTEMS FOR EFFICIENTLY SAMPLING PORTFOLIOS FOR OPTIMAL
    UNDERWRITING**
 **PROCEDES ET SYSTEMES D'ECHANTILLONNAGE EFFICACE DE PORTEFEUILLES EN VUE
    D'UNE GARANTIE OPTIMALE**
Patent Applicant/Assignee:

GE CAPITAL COMMERCIAL FINANCE INC, 201 High Ridge Road, Stamford, CT
    06927-5100, US, US (Residence), US (Nationality)
Inventor(s):
  KEYES Tim K, 16 Topledge Road, West Redding, CT 06896, US,
  JOHNSON Christopher D, 17 Berkshire Drive W, Clifton Park, NY 12065, US,
  MESSMER Richard P, 735 Riverview Road, Rexford, NY 12148, US,
  EDGAR Marc T, 1015 Foxwood Drive, Clifton Park, NY 12065, US,
  KAPOOR Navneet, 1187 Hillside Avenue #4B-45, Niskayuna, NY 12309, US,
Legal Representative:
  BENINATI John F (et al) (agent), General Electric Company, 3135 Easton
    Turnpike W3C, Fairfield, CT 06431, US,

Fulltext Availability:
  Detailed Description
  Claims

Detailed Description
... the seller of assets wants to optimize the value of the portfolio, and
  will sometimes group the assets in "tranches." The term "tranche" as
  used herein is not limited to foreign notes but...
...the time for submitting a bid is about to expire, the bidder will
  evaluate the assets underwritten at that time, and then -Iattempt to
  extrapolate a value to the assets that have...data reduction are used in
  valuing the third portion.

As the process proceeds and more assets are underwritten , the number
of assets with values established in the first and second portions
increase and the number of assets...

...more and more defined. More specifically, the assets in the third
portion are evaluated by grouping the assets into clusters having
probability of value based on similarity to valuations of assets in the
first and...

...is a diagram IO illustrating a known process for valuing a
large port'folio of assets 12 through an underwriting cycle and
through to making a bid for purchasing asset.portfolio 12, for example,
in...first portion 16 and an untouched 1 5 remainder portion 18. Before
any of the assets are underwritten , first portion 16 is zero percent
and remainder portion 18 is one hundred percent of...

...progresses, first portion 16 increases and remainder portion I 8
decreases. The objective is to underwrite as many assets as possible

before a bid is submitted for the purchase of asset portfolio. The team
...

...purposes (as described below.) As in diagram I 0, underwriters 1 0 begin
a full underwrite 14 of individual assets in portfolio 12 to produce
a fully underwritten first portion 16 of assets . Underwriters also
underwrite 34 a sample of assets in a second portion 36 of portfolio 12,
and a...so well known or so reliable that the assets can be quickly and
reliably fully underwritten or the assets are marked to market such
that there is very little variance associated with the value...

...any fall sampling group valuation I 1 8 required for bidding as
suggested by the grouping of assets in a tranche.

The number of assets in an underwriting sample grouping can be as
little as one to any number of assets. Partial sampling...on an ongoing,
real time basis.

Supervised learning process 206 uses business rules to identify clusters
of assets having common aspects for valuation purposes. Unsupervised
learning process 208 uses feedback from prior data...of statistically
inferred valuation 142 by correlating to established criteria 80 in
database 76 on assets in fully underwritten first portion 16 and
assets in sample underwritten second portion 36. Selected data 78
related to one or more assets in thirdportion 42...

...selectable by the analysts conducting the evaluation and is further
described below. If the seller groups the assets , then 1 5 grouping
according to seller groups or tranches is easily made and an appropriate
valuation 146 developed...

...the best method has been employed.

In order to provide the best forecast of asset value , assets are
evaluated by each ...not homogeneous, a method to establish the
variability of cash flow recoveries is provided. Individual assets are
clustered by group exposure. As much face value as possible is
traditionally underwritten in the time permitted, recognizing...the
encoded asset attributes in such a way so as to segment the portfolio
into groups of similar assets . One such algorithm is K-means
clustering.

In an example, where three asset attributes, Unpaid...sample size is
derived.

Table B provides an example output from a study of a group of 20
loans , with estimated (expected) recoveries between 20% and 30% of UPB,
and a range of UPB...a flow diagram illustrating a process 21 0 for
automated underwriting of segmentable financial instrument assets .
First clusters of financial instruments are defined 212 by common
attributes. An expert opinion 214 of value...

...sets 220 1 0 the individual attributes to be used and then classifies
222 individual assets into clusters . Cluster valuation is applied
224 to each cluster asset. Using the cluster valuation, the values are...

...is then supplied to the individual asset values in credit analyst table
136 for the assets from the clusters being adjusted in procedure 40
to produce adjusted credit analyst table 140. The process is...

...underwriting, partial underwriting and inferred valuation. First, assets
are sampled 242 according to risk. Second, assets are underwritten
244, and valuations recorded. Third, market value clusters are formed
246, such as by FCM, as described below. Fourth, regression models are
built 248, for the underwritten assets .
A best model is selected 250, for the underwritten assets from among
those built 248 earlier. Sixth, the counts for the selected models are
calculated...

...a manner weighted by the counts to predict individual values for each of
the non- underwritten assets . The individual asset values produced
according I 0 to process 240 are then placed in adjusted credit analyst
table 140 (see Figure 3).

In sampling assets 242, underwriters use stratified random sampling
to
select assets for detailed review. Strata are constructed from collateral
...

...a largely manual process in which expert
underwriters ascribe a notion of worth to collateral assets . The
underwritten valuations are stored in a master database table, such as
database ...an analysis using a Classification And Regression Tree
("CART") based model, which results in a grouping of UW assets by
Collateral Usage and Market Value ("CU`MV`) groups, using Previous
Appraisal Amount ("PAA") as...shown in Figure 3) performs this process.
Model building 248 is used to assist the underwriter in prioritizing
assets for full underwriting 14 and sample-based underwriting 34, as
well as for-inferential valuation.

The lower portion...behavior. Unsupervised learning step 208, employs a
fuzzy clustering method ("FCM") and knowledge engineering to group
assets automatically for valuation. FCM is a known method that has been
widely used 1 5...one exemplary embodiment 25% of the assets and 60% of
the face value of all assets . Full underwriting of these .assets is
warranted due to their size and value. However, this underwriting is
fairly unifonn for...

Claim
... in an asset portfolio (12) for
optimal underwriting coverage when only a portion of the assets are to
be
 underwritten , said method comprising the steps of
determining descriptive attributes of assets in the portfolio;
encoding individual attributes; and
 clustering (120) the assets for underwriting based upon occurrences
of
the descriptive attributes.

2 A method (32) according to .Claim I...

...total recoveries probable further comprises the step of deterrnining a
sample size, n, for the cluster (120) of assets
according to:
N -2 N
h2;=k'xn I- n X YXI (Yi - kyx
N...

...with probability> I
6 A method (32) according to Claim 1 wherein said step of

clustering (120) the assets for underwriting further comprises the step of using a supervised clustering process (206) to cluster the assets .

. A method (32) according to Claim I wherein said step of clustering (120) the assets for underwriting further comprises the step of using an unsupervised clustering process (208) to cluster the assets .

8 A method (32) according to Claim 1 wherein said step of clustering (120) the assets for underwriting further comprises the step of using a Monte Carlo process to cluster the assets .

9 A system (300) configured to sample assets in an asset portfolio (12) for optimal individual attributes; and
1 5 cluster (120) the assets for underwriting based upon occurrences of the descriptive attributes.

10 A system (300) according to Claim 9...

...I I wherein' said server (302) configured to determine a sample size, n, for the cluster of assets according to:
2 N
x, 2
n (yj - Rx)
=k
I NI n Xi]2...

...Claim 9 wherein said server (302) configured to use a supervised clustering process (206) to cluster (120) the assets .

15 A system (300) according to Claim 9 wherein said server (302) configured to use an unsupervised clustering process (208) to cluster (120) the assets .

16 A system (300) according to Claim 9 wherein said server (302) configured to use a Monte Carlo process to cluster (120) the assets .

17 A computer (38) for sampling assets in an asset portfolio (12) for optimal underwriting...

...programm ed to:
determine descriptive attributes of assets in the portfolio;
encode individual attributes; and
cluster (120) the assets for underwriting based upon occurrences of the
descriptive attributes.

18 A computer (38) according to Claim' 17...

...38) according to Claim 19 programmed to
deten-nine a sample size, n, for the cluster of assets according to:
N
EXi Y
n (yi
RXi)2
h =k'xiz 1-- X
N...computer (38) according to Claim 17 programmed to use a supervised clustering process (206) to cluster (120) the assets .

23 A computer (38) according to Claim 17 programmed to use an
unsupervised clustering process (208) to cluster (120) the assets .
. A computer (38) according to Claim 17 programmed to use a
Monte Carlo process to cluster (120) the assets .

7/3,K/11   (Item 6 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00816787   **Image available**
 METHODS AND SYSTEMS FOR FINDING VALUE AND REDUCING RISK
 PROCEDES   ET SYSTEMES PERMETTANT DE RECHERCHER UNE VALEUR ET DE REDUIRE LES
   RISQUES
Patent Applicant/Assignee:
 GE CAPITAL COMMERCIAL FINANCE INC, 201 High Ridge Road, Stamford, CT
    06927-5100, US, US (Residence), US (Nationality)
Inventor(s):
 MESSMER Richard P, 735 Riverview Road, Rexford, NY 12148, US,
 JOHNSON Christopher D, 17 Berkshire Drive W., Clifton Park, NY 12065, US,

 KEYES Tim K, 16 Topledge Road, West Redding, CT 06896, US,
 STEWARD William C, 13 Sycamore Street, Norwalk, CT 06855, US,
 EDGAR Marc T, 1015 Foxwood Drive, Clifton Park, NY 12065, US,
Legal Representative:
 BENINATI John F (et al) (agent), General Electric Company, 3135 Easton
    Turnpike W3C, Fairfield, CT 06431, US,
Patent and Priority Information (Country, Number, Date):
 Patent: WO 200150316 A2 20010712 (WO 0150316)
 Application: WO 2000US34671 20001220 (PCT/WO US0034671)
 Priority Application: US 99173792 19991230; US 2000737629 20001214
Designated States:
(Protection type is "patent" unless otherwise stated - for applications
prior to 2004)
 AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH
 GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN
 MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW
 (EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
 (OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
 (AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
 (EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 13422

Fulltext Availability:
 Detailed Description
 Claims

Detailed Description
...   the seller of assets wants to optimize the value of the portfolio, and
   will sometimes group the assets in "tranches." The term "tranche" as
   used herein is not limited to foreign notes but...
...the time for submitting a bid is about to expire, the bidder will
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   extrapolate a value to the assets that have...data reduction are used in
   valuing the third portion.

 As the process proceeds and more assets   are   underwritten , the number

of assets with values established in the first and second portions increase and the number of assets...

...more and more defined. More specifically, the assets in the third portion are evaluated by grouping the assets into clusters having probability of value based on similarity to valuations of assets in the first and...

...I is a diagram 10 illustrating a known process for valuing a large portfolio of assets 12 through an underwriting cycle and through to making a bid for purchasing asset portfolio 12, for example, in...an underwritten first portion 16 and an untouched remainder portion 18. Before any of the assets are underwritten , first portion 16 is zero percent and remainder portion 18 is one hundred percent of...

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...the best method has been employed.

In order to provide the best forecast of asset value , assets are evaluated by each method within a food chain until such time ...not homogeneous, a method to establish the variability of cash flow recoveries is provided. Individual assets are clustered by group exposure. As much fa'ce value as possible is traditionally underwritten in the time permitted...the encoded asset attributes in such a way so as to segment the portfolio into groups of similar assets . One such algorithm is K-rneans clustering. In an example, where three asset attributes, Unpaid...size is derived.

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underwritten valuations are stored in a master database table, such as
database 76 (shown in ...an analysis using a Classification And
Regression Tree ("CART") based model, which results in a grouping of UW
 assets by Collateral Usage and Market Value ("CUMV") groups, using
Previous Appraisal Amount ("PAA") as the...shown in Figure 3) performs
this process. Model building 248 is used to assist the underwriter in
prioritizing assets for full underwriting 14 and sample-based
underwriting 34, as well as for inferential valuation..

The lower portion...behavior. Unsupervised teaming step 208, employs a
fuzzy clustering method ("FCM") and knowledge engineering to group
assets automatically for valuation. FCM is a known method that has been
widely used 5 and...one exemplary embodiment 25% of the assets and 60% of
the face value of all assets . Full underwriting of these assets is
warranted due to their size and value. However, this underwriting is
fairly uniform for...

Claim
... Claim 1 wherein said step of

recalculating asset value further comprises the step of pre- underwriting assets to determine asset value.

3 A method (32) according to Claim 1 wherein said step of recalculating asset value further comprises the step of partially underwriting (34) assets to deten-nine asset value.

4 A method (32) according to Claim 1 wherein said step of recalculating asset value further comprises the step of fully underwriting (I 4) assets to determine asset value.
1 5 5. A method according to Claim 4 wherein said step of fully underwriting (14) assets further comprises the steps of underwriting a number of the assets on a full cash...

...13 A system (300) according to Claim 12 wherein said server (302) configured to pre- underwrite assets to determine asset value.

14 A system (300) according to Claim 12 wherein said server (302) configured to partially underwrite (34) assets to determine asset value.

15 A system (300) according to Claim 12 wherein said server (302) configured to fully underwrite (14) assets to determine asset value.

16 A system (300) according to Claim 15 wherein said server...to determine asset value.

25 A computer (38) according to Claim 23 programmed to partially underwrite (34) assets to determine asset value.

26 A computer (38) according to Claim 23 programmed to fully...

7/3,K/12   (Item 7 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00816786   **Image available**
 METHODS AND APPARATUS FOR AUTOMATED·UNDERWRITING OF SEGMENTABLE PORTFOLIO ASSETS
 PROCEDES ET DISPOSITIFS DE GARANTIE AUTOMATISEE D'ACTIFS DE PORTEFEUILLE POUVANT ETRE SEGMENTES
Patent Applicant/Assignee:
  GE CAPITAL COMMERCIAL FINANCE INC, 201 High Ridge Road, Stamford, CT
    06927-5100, US, US (Residence), US (Nationality)
Inventor(s):
  JOHNSON Christopher D, 17 Berkshire Drive W, Clifton Park, NY 12065, US,
  KEYES Tim K, 16 Topledge Road, West Redding, CT 06896, US,
  EDGAR Marc T, 1015 Foxwood Drive, Clifton Park, NY 12065, US,
  PISUPATI Chandrasekhar, 1187 Hillside Avenue, Apartment #5B49, Niskayuna,
    NY 12309, US,
  STEWARD William C, 13 Sycamore Street, Norwalk, CT 06855, US,
Legal Representative:
  BENINATI John F (et al) (agent), General Electric Company, 3135 Easton
   Turnpike W3C, Fairfield, CT 06431, US,
Patent and Priority Information (Country, Number, Date):
  Patent: WO 200150315 A2 20010712 (WO 0150315)
  Application: WO 2000US34670 20001220 (PCT/WO US0034670)
  Priority Application: US 99173946 19991230; US 2000737035 20001214

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prior to 2004)
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  GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG
  MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN
  YU ZW
  (EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
  (OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
  (AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
  (EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 13157

**METHODS AND APPARATUS FOR AUTOMATED UNDERWRITING OF SEGMENTABLE PORTFOLIO
  ASSETS**
Fulltext Availability:.
  Detailed Description
  Claims
Detailed Description   )
... report. ning of each regular issue of the PCT Gazette.

  METHODS AND APPARATUS FOR AUTOMATED
   UNDERWRITING OF SEGMENTABLE PORTFOLIO
   ASSETS
  CROSS REFERENCE TO RELATED APPLICATIONS
  This application claims the benefit of U.S. Provisional Application...

...the seller of assets wants to optimize the value of the portfolio, and
   will sometimes group the assets in "tranches." The term "tranche" as
   used herein is not limited to foreign notes but...

...the time for submitting a bid is about to expire, the bidder will
   evaluate the loans underwritten at that time, and then attempt to
   extrapolate a value to the loans that have...data reduction are used in
   valuing the third portion.

   As the process proceeds and more assets are underwritten , the number
   of assets in the first and second portions increase and the number of
   assets in the third...
...more and more defined. More specifically, the assets in the third
   portion are evaluated by grouping the assets into clusters based on
   similarity to valuations of assets in the first and second portions.

   A method for the automated underwriting of the segmented assets .

   using a portfolio valuation system is disclosed and includes the steps of
   defining 2clusters of...

...I is a diagram 10 illustrating a known@process for valuing a
   large portfolio of assets 12 through an underwriting cycle and
   through to making a bid for purchasing asset portfolio 12, for example,
   in...an underwritten first portion 16 and an untouched remainder portion
   18. Before any of the assets are underwritten , first portion 16 is
   zero percent and remainder portion 18 is one hundred percent of...

...tranches for bidding purposes (as described below.) As in diagram IO,
   underwriters begin a full underwrite 14 of individual assets in
   portfolio 12 to produce a fully underwritten first portion 16 of assets

. Underwriters also underwrite 34 a sample of assets in a second
portion 36 of portfolio 12, and a....so well known or so reliable that the
assets can be quickly and reliably fully underwritten or the assets
are marked to market such that there is very little variance associated
with the value...

...full sampling group valuation I 1 8 required for bidding as su ggested
by the grouping of assets in a tranche.

The number Of assets in an underwriting sample grouping can be as
little as one to any number of assets. Partial sampling...on an ongoing,
real time basis.

Supervised teaming process 206 uses business rules to identify clusters
of assets having common aspects for valuation purposes. Unsupervised
learning process 208 uses feedback from prior data...of statistically
inferred valuation 142 by correlating to established criteria 80 in
database 76 on assets in fully underwritten first portion 16 and
assets in sample underwritten second portion 36. Selected data 78
related to one or more assets in third portion...selectable by thd
analysts conducting the evaluation and is further described below. If the
seller groups the assets , then 1 5 grouping according to seller
groups or tranches is easily made and an appropriate valuation 146
developed...
...the best method has been employed.

In order to provide the best forecast of asset value , assets are
evaluated by each method within a food chain until such time as they are
valued by...not homogeneous, a method to establish the
variability of cash flow recoveries is provided. Individual' assets are
clustered by group exposure. As much face value as possible is
traditionally underwritten in the time permitted, recognizing...the
encoded asset attributes in such a way so as to segment the portfolio
into groups of similar assets . One such algorithm is K-means
clustering.

In an example, where three asset attributes, Unpaid...size is derived.

10 Table 13 provides an example output from a study of a group of 20,
 loans , with estimated (expected) recoveries between 20% and 30% of UPB,
and a range of UPB...is a flow diagram illustrating a process 210 for
automated underwriting of segmentable financial instrument assets .
First clusters of financial instruments are defined 212 by common
attributes. An expert opinion 214 of value...

...selects and sets 220 the individual attributes to be used and then
classifies 222 individual assets into clusters . Cluster valuation
is applied 224 to each cluster asset. Using the cluster valuation, the
values are...is then supplied to the individual asset values in credit
analyst table 136 for the assets from the clusters being adjusted in
procedure 40 to produce adjusted credit analyst table 140. The process is
...

...underwriting, partial underwriting and inferred valuation. First, assets
are sampled 242 according to risk. Second, assets are underwritten
244, and valuati'ons recorded. Third, market value clusters are formed
246, such as by FCM, as described below. Fourth, regression models are
built 248, for the underwritten assets .

A best model is selected 250, for the underwritten assets from among

those built 248 earlier. Sixth, the counts for the selected models are calculated...

...a manner weighted by the counts to predict individual values for' each of the non- underwritten assets . The individual asset values produced according to process 240 are then placed in adjusted credit analyst table 140 (see Figure 3).
In sampling assets 242, underwriters use stratified random sampling to
select assets for detailed review. Strata are constructed from collateral
...

...a largely manual process in which expert
underwriters ascribe a notion-of worth to collateral assets . The underwritten valuations are stored in a master database table, such as database 76 (shown in Figure...an analysis using a Classification And Regression Tree ("CART") based model, which results in a grouping of UW
 assets by Collateral Usage and Market Value ("CUMV") groups, using Previ ous Appraisal Amount ("PAA") as...shown in Figure 3) performs this process. Model building 248 is used -to assist the underwriter in prioritizing assets for full underwriting 14 and sample-based underwriting 34, as well as for inferential valuation'.

The lower portion...behavior. -Unsupervised learning step 208, employs a ftizzy clustering method ("FCM") and knowledge engineering to group assets automatically for valuation. FCM is a known method that has been widely used and applied...one exemplary embodiment 25% of the assets and 60% of the face value of all assets . Full underwriting of these assets is warranted due to their size and value. However, this underwriting is fairly uniform for...

Claim
... A method (210) according to Claim 2 further comprising the. step of classifying (222) individual assets into clusters .

4 A method (2 1 0) according to Claim 3 further comprising the step of...

...clusters of financial instruments b common attributes further
y
37
comprises the step of identifying clusters of assets with common characteristics using business rules.

8 Amethod(210)accordin toClaimlwhereinsaidstepof
receiving an expert opinion (214) of value further comprises the step of evaluating the assets by computer (38) with the assistance from an experienced underwriter.

9 A portfolio valuation system...

...300) according to Claim 10 wherein said server
(302) is configured to classify@(222) individual assets into clusters

12 A system (300) according to Claim I 1 wherein said server
(302) is configured...

...A system (300) according to Claim 9 wherein said server (302)
is configured to identify clusters of assets with common

characteristics using business rules.

...the underwriting.

19 A computer (38) according to Claim 18 programmed to classify (222) individual assets into clusters .

20 A computer (38) according to Claim 19 programmed to apply (224) a cluster valuation...

...least one asset class.

23 A computer (38) according to Claim 17 programmed to identify clusters of assets with common characteristics using business rules.

24 1 A computer (38) according to Claim 17...

7/3,K/13   (Item 8 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00816785   **Image available**
 METHODS AND SYSTEMS FOR QUANTIFYING CASH FLOW RECOVERY AND RISK
 PROCEDES ET SYSTEME DESTINES A QUANTIFIER LE RISQUE ET LA RECUPERATION DE FONDS
Patent Applicant/Assignee:
  GE CAPITAL COMMERCIAL FINANCE INC, 201 High Ridge Road, Stamford, CT
    06927-5100, US, US (Residence), US (Nationality)
Inventor(s):
  JOHNSON Christopher D, 17 Berkshire Drive W, Clifton Park, NY 12065, US,
  KEYES Tim K, 16 Topledge Road, West Redding, CT 06896, US,
  SPENCER David J, 87/1 Capital Tower, All Seasons Place, Pathumwan,
    Bangkok 10330, TH,
  MIDKIFF Catharine L, #K Palmyra Court, 34 soi Nantha, South Sathorn Road,
    Thungmahemek, Sathorn, Bangkok 10120, TH,
  MESSMER Richard P, 735 Riverview Road, Rexford, NY 12148, US,
  PISUPATI Chandrasekhar, 1187 Hillside Avenue, Apartment #5B49, Niskayuna,
    NY 12309, US,
  CHEN Yu-To, 1223 Carlyle Drive, Niskayuna, NY 12309, US,
Legal Representative:
  BENINATI John F (et al) (agent), General Electric Company, 3135 Easton
    Turnpike W3C, Fairfield, CT 06431, US,
Patent and Priority Information (Country, Number, Date):
  Patent: WO 200150314 A2 20010712 (WO 0150314)
  Application: WO 2000US34669 20001220 (PCT/WO US0034669)
  Priority Application: US 99173843 19991230; US 2000736782 20001214
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  (EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
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  (AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
  (EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English

Detailed Description
... the seller of assets wants to optimize the value of the portfolio, and
   will sometimes group the assets in "tranches." The term "tranche" as
   used herein is not limited to foreign notes but...

...the time for submitting a bid is about to expire, the bidder will
   evaluate the loans underwritten at that time, and then attempt to
   extrapolate a value to the loans that have...data reduction are used in
   valuing the third portion.

   As the process proceeds and more assets are underwritten , the number
   of assets in the first and second portions increase and the number of
   assets in the third...

...more and more defined. More specifically, the loans in the third portion.
   are evaluated by grouping the assets into clusters based on
   similarity to valuations of assets in the first and second portions.
   Hypothetical bids...I is a diagram IO illustrating a known process for
   valuing a
   large portfolio of assets 12 through an underwriting cycle and
   through to making a bid for purchasing asset portfolio 12, for example,
   in...
...an underwritten first portion 16 and an untouched remainder portion 18.
   Before any of the assets are underwritten , first portion 16 is zero
   percent and remainder portion 18 is one hundred percent of...

...process progresses, first portion 16 increases and remainder portion 18
   decreases. The objective is to underwrite as many assets as possible
   before a bid is submitted for the purchase of asset portfolio. The team
   ...

...for bidding purposes (as described below.) As in diagram IO,
   underwriters be in a full underwrite 14 of individual assets in
   portfolio 12 to produce a fully underwritten first portion 16 of assets
   . Underwriters also underwrite 34 a sample ...so well known or so ·
   reliable that the assets can be quickly and reliably fully underwritten
   or the assets are marked to market such that there is very little
   variance associated with the value...any full sampling group valuation 1
   1 8 required for bidding as suggested by the grouping of assets in a
   tranche.

   The number of assets in an underwriting sample grouping can be as
   little as one to any number of assets. Partial sampling...
...on an ongoing, real time basis.

   Supervised learning process 206 uses business rules to identify clusters
    of assets having common aspects for valuation purposes. Unsupervised
   learning process 208 uses feedback from prior data...of statistically
   inferred valuation 142 by correlating to established criteria 80 in
   database 76 on assets in fully underwritten first portion 16 and
   assets in sample underwritten second portion 36. Selected data 78
   related to one or more assets ·in third portion...

...selectable by the analysts conducting the evaluation and is further
   described below. If the seller groups the assets , then grouping

according to seller groups or tranches is easily made and an appropriate valuation 146 developed...the best method has been employed.

In order to provide the best forecast of asset value , assets are evaluated by each method within a food chain until such time as they are valued by...not homogeneous, a method to establish the variability of cash flow recoveries is provided. Individual assets are clustered by group exposure. As much face value as possible is traditionally underwritten in the time permitted, recognizing...the encoded asset attributes in such a way so as to segment the portfolio into groups of similar assets . One such algorithm is K-means clustering.

In an example, where three asset attributes, Unpaid...sample size is derived.

Table B provides an example output from a study of a group of 20 loans , with estimated (expected) recoveries between 20% and 30% of UPB, and a range of UPB...flow diagram illustrating a process 2 1 0 for automated underwriting of segmentable financial instrument assets . First clusters of financial instruments are defined 212 by common attributes. An expert opinion 214 of value...

...selects and sets 220 the individual attributes to be used and then classifies 222 individual assets into clusters . Cluster valuation is applied 224 to each cluster asset. Using the cluster valuation, the values are...

...is then supplied to the individual asset values in credit analyst table 136 for the assets from the clusters being adjusted in procedure 40 to produce adjusted credit analyst table 140. The process is...
...underwriting, partial underwriting and inferred valuation. First, assets are sampled 242 according to risk. Second, assets are underwritten 244, and valuations recorded. Third, market value clusters are formed 246, such as by FCM, as described below. Fourth, regression models are built 248, for the underwritten assets .

A best model is selected 250, for the underwritten assets from among those built 248 earlier. Sixth, the counts for the selected models are calculated...

...a maimer weighted by the counts to predict individual values for each of the non- underwritten assets . The individual asset values produced according to process 240 are then placed in adjusted credit analyst table 140 (see Figure 3).

In sampling assets 242, underwriters use stratified random sampling to select assets for detailed review. Strata are constructed from collateral ...

...a largely manual process in which expert underwriters ascribe a notion of worth to collateral assets . The underwritten valuations are stored in a master database table, such as database 76 (shown in Figure...

...an analysis using a Classification And Regression Tree ("CART") based model, which results in a grouping of UW assets by Collateral Usage and Market Value ("CUMV") groups, using Previous Appraisal Amount ("PAA") as the...shown in Figure 3) performs this process. Model building 248 is

used to assist the underwriter in prioritizing assets for full
underwriting 14 and sample-based underwriting 34, as well as for
inferential valuation.

The lower portion...behavior. Unsupervised learning step 208, employs a
fuzzy clustering method ("FCM") and knowledge engineering to group
assets automatically for valuation. FCM is a known method that has been
widely used and applied...one exemplary embodiment 25% of the assets and
60% of the face value of all assets . Full underwriting of these
assets is warranted due to their size and value. However, this
underwriting is fairly uniform for...

7/3,K/14   (Item 9 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00816784   **Image available**
RAPID VALUATION OF PORTFOLIOS OF ASSETS SUCH AS FINANCIAL INSTRUMENTS
3VALUATION RAPIDE DE PORTEFEUILLES D'ACTIFS TELS QUE DES INSTRUMENTS
  FINANCIERS
Patent Applicant/Assignee:
  GE CAPITAL COMMERCIAL FINANCE INC, 201 High Ridge Road, Stamford, CT
    06927-5100, US, US (Residence), US (Nationality)
Inventor(s):
  JOHNSON Christopher D, 17 Berkshire Drive W, Clifton Park, NY 12065, US,
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  EDGAR Marc T, 1015 Foxwood Drive, Clifton Park, NY 12065, US,
  CIFARELLI James L, 2146 Rosa Road, Apartment #3, Schenectady, NY 12309,
    US,
  AKBAY Kunter S, 2337 Knolls View Drive, Niskayuna, NY 12309, US,
  RAJIV Vrinda, 67 Bishop's Gate, Apartment C, Guilderland, NY 12084, US,
  NELSON David R, 4265 Fairway Villas Drive, Alpharetta, GA 30022, US,
  STEWARD William C, 13 Sycamore Street, Norwalk, CT 06855, US,
Legal Representative:
  BENINATI John F (et al) (agent), General Electric Company, 3135 Easton
    Turnpike W3C, Fairfield, CT 06431, US,
Patent and Priority Information (Country, Number, Date):
  Patent: WO 200150313 A2 20010712 (WO 0150313)
  Application: WO 2000US34668 20001220 (PCT/WO US0034668)
  Priority Application: US 99173639 19991230; US 2000737454 20001214
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  (AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
  (EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English

English Abstract
  A method (32) of valuation of large groups of assets (12) by partial
  full underwriting (14), partial sample underwriting (34) and inferred
  values (40) of...

Detailed Description
... the seller of assets wants to optimize the value of the portfolio, and
  will sometimes group the assets in "tranches." The term "tranche" as
  used herein is not limited to foreign notes but...

...the time for submitting a bid is about to expire, the bidder will
  evaluate the assets   underwritten at that time, and then attempt to
  extrapolate a value to the assets that have...data reduction are used in
  valuing the third portion.

  As the process proceeds and more assets are underwritten , the number
  of assets with values established in the first and second portions
  mcrease and the number of assets...

...more and more defined. More specifically, the assets in the third
  portion are evaluated by grouping the assets into clusters having
  probability of value based on similarity to valuations of assets in the
  first and...is a diagram 1 0 illustrating a known process for valuing a
  large portfolio of assets 12 through an underwriting cycle and
  through to making a bid for purchasing asset portfolio 12, for example,
  in...
...an underwritten first portion 16 and an untouched remainder portion 18.
  Before any of the assets are underwritten , first portion 16 is zero
  percent and remainder portion 18 is one hundred percent of...

...process progresses, first portion 16 increases and remainder portion 18
  decreases. The objective is to underwrite as many assets as possible
  before a bid IS submitted for the purchase of asset portfolio. The team
  ...

...tranches for bidding purposes (as described below.) As in diagram 10,
  underwriters begin a full underwrite 14 of individual assets in
  portfolio 12 to produce a fully underwritten first portion 16 of assets
  . Underwriters also underwrite 34 a sample of assets in a second
  portion 36 of portfolio 12, and a...so well known or so reliable that the
  assets can be quickly and reliably fully underwritten or the assets
  are marked to market such that there is very little variance associated
  with the value...

...into any full sampling group valuation II 8 required for bidding as
  suggested by the grouping of assets in a tranche.

  The number of assets in an underwriting sample grouping can be as
  little as one to any number of assets. Partial sampling...an ongoi ng,
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  Supervised learning process 206 uses business rules to identify clusters
   of assets having common aspects for valuation purposes. Unsupervised

learning process 208 uses feedback from prior data...of statistically inferred valuation 142 by correlating to established criteria 80 in database 76 on assets in fully underwritten first portion 16 and assets in sample underwritten second portion 36. Selected data 78 related to one or more assets in third portion...

...selectable by the analysts conducting the evaluation and is further. described below. If the seller groups the assets , then grouping according to seller groups or tranches is easily made and an appropriate valuation 146 developed...the best method has been employed.

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Table B provides an example output from a study of a group of 20 loans , with estimated (expected) recoveries between 20% and 30% of UPB, and a range of UPB...flow diagram illustrating a process 2 1 0 for automated underwriting of segmentable financial instrument assets . First clusters of financial instruments are defined 212 ...selects and sets 220 the individual attributes to be used and then classifies 222 individual assets into clusters . Cluster valuation is applied. 224 to each cluster asset. Using the cluster valuation, the values are...

...is then supplied to the individual asset values in credit analyst table 136 for the assets from the clusters being adjusted in procedure 40 to produce adjusted credit analyst table 140. The process is...

...underwriting, partial underwriting and inferred valuation. First, assets are sampled 242 according to risk. Second, assets are underwritten 244, and valuations recorded. Third, market value clusters are formed 246, such as by FCM, as described below. Fourth, regression models are built 248, for the underwritten assets .

A best model is selected 250, for the underwritten assets from among those built 248 earlier. Sixth, the counts for the selected models are calculated...

...a manner weighted by the counts to predict individual values for each of the non- underwritten assets . The individual asset values produced according to process 240 are then placed in adjusted credit analyst table,140 (see Figure 3).

In sampling assets 242, underwriters use stratified random sampling to
select assets for detailed review. Strata are constructed from collateral
...a largely manual process in which expert
underwriters ascribe a notion of worth to collateral assets . The underwritten valuations are stored in a master database table, such as database 76 (shown in Figure...

...an analysis using a Classification And Regression Tree ("CART") based
model, which results in a grouping of UW assets by Collateral Usage
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assets automatically for valuation. FCM is a known method that has been
widely used and applied...one exemplary embodiment 25% of the assets and
60% of the face value of all assets . Full underwriting of these
assets is warranted due to their size and value. However, this
underwriting is fairly uniform for...

Claim
... 106) comprises the steps of
sampling one hundred percent (1 1 0) of a sample group of assets ;
 underwriting in full (14) a portion of the sampling group of assets
based on a determined commonality within the sampling group.

7 A method (32) according to...learning process further comprises the
steps of
segmenting and classifying assets; and
objectively evaluating the assets based upon underwriting or other
valuation data feedback.
·39
. A method (32) according to Claim 9 wherein said...

...according to Claim 13 further comprising the
steps of:
dividing the second category (50) of assets into clusters (52, 54);
and
dividing the clusters into sub-clusters (56, 58, 60, 62, 64).

15...said server
(302) is configured to:
sample one hundred percent (1 10) of a sample group of assets ;
 underwrite in full a portion of the sampling group of assets based
on a
determined commonality within the sampling group.

22 A system (300) according to...

...27 A system (300) according to Claim 24 wherein said server
(302) is configured to cluster assets using fuzzy-C means clustering
(FCM) and a composite High/Expected/Low/Timing/Risk (HELTR...

...Claim 28 wherein said server
(302) is configured to:
divide the second category (50) of assets into clusters (52, 54); and
divide the clusters into sub-clusters (56, 58, 60, 62, 64).

30...according to Claim 35 programmed to:
sample one hundred percent (I 10) of a sample group of assets ;
 underwrite in full (14) a portion of the sampling group of assets
based
on a detennined commonality within the sampling group.
37 A computer (38) according to...upon data feedback.

46
. A computer (3 8) according to Claim 3 9 programmed to cluster
 assets using fuzzy-C means clustering (FCM) and a composite
I-Egh/Expected/Low/Timing/Risk...

...A computer (38) according to Claim 43 programmed to:
 divide the second category (50) of assets into clusters (52, 54); and
 divide the clusters into sub-clusters (56, 58, 60, 62, 64).

 45...

 7/3,K/15   (Item 10 from file: 349)
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00816782   **Image available**
 METHODS AND SYSTEMS FOR OPTIMIZING RETURN AND PRESENT VALUE
 PROCEDES ET SYSTEMES D'OPTIMISATION DU RENDEMENT ET DE LA VALEUR ACTUELLE
Patent Applicant/Assignee:
 GE CAPITAL COMMERCIAL FINANCE INC, 201 High Ridge Road, Stamford, CT
    06927-5100, US, US (Residence), US (Nationality)
Inventor(s):
 JOHNSON Christopher D, 17 Berkshire Drive W, Clifton Park, NY 12065, US,
 EDGAR Marc T, 1015 Foxwood Drive, Clifton Park, NY 12065, US,
 KEYES Tim K, 16 Topledge Road, West Redding, CT 06896, US,
Legal Representative:
 BENINATI John F (et al) (agent), General Electric Company, 3135 Easton
    Turnpike W3C, Fairfield, CT 06431, US,
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 Detailed Description

Detailed Description
... the seller of assets wants to optimize the value of the portfolio, and
 will sometimes group the assets in "tranches." The term "tranche" as
 used herein is not limited to foreign notes but...

...the time for submitting a bid is about to expire, the bidder will
 evaluate the loans underwritten at that time, and then attempt to
 extrapolate a value to the loans that have...data reduction are used in
 valuing the third portion.
 As the process proceeds and more assets are underwritten , the

number of assets in the first and second portions increase and the number of assets in the third...

...more and more defined. More specifically, the assets in the third portion are evaluated by grouping the assets into clusters based on similarity
SUBSTITUTE SHEET (RULE 26)
to valuations of assets in the first and...I is a diagram 10 illustrating a known process for valuing a
large portfolio of assets 12 through an underwriting cycle and through to making a bid for purchasing asset portfolio 12, for example, in...

...an underwritten first portion 16 and an untouched remainder portion 18. Before any of the assets are underwritten , first portion 16 is zero percent and remainder portion 18 is one hundred percent of...

...process progresses, first portion 16 increases and remainder portion 18 decreases. The objective is to underwrite as many assets as possible before a bid is submitted for the purchase of asset portfolio. The team ...

...tranches for bidding purposes (as described below.) As in diagram 10, underwriters begin a full underwrite 14 of individual assets in portfolio 12 to produce a fully underwritten first portion 16 of assets

Underwriters also underwrite 34 a sample of assets in a second portion 36 of portfolio 12, and a...so well known or so reliable that the assets can be quickly and reliably fully underwritten or the assets are marked to market such that there is very little variance associated with the value bidding as suggested by the grouping of assets in a tranche. The number of assets in an underwriting sample grouping can be as little as one to any number of assets.

Partial sampling...

...on an ongoing, real time basis.

Supervised learning process 206 uses business rules to identify clusters of assets having common aspects for valuation purposes. Unsupervised learning process 208 uses feedback from prior data...of statistically inferred valuation 142 by correlating to established criteria 80 in database 76 on assets in fully underwritten first portion 16 and assets in sample underwritten second portion 36. Selected data 78 related to one or more assets in third portion...

...selectable by the analysts conducting the evaluation and is further described below. If the seller groups the assets , then grouping according to seller groups or tranches is easily made and an appropriate valuation 146 developed...the best method has been employed.

In order to provide the best forecast of asset value , assets are evaluated by each method within a food chain until such time as they are valued by...not homogeneous, a method to establish the variability of cash flow recoveries is provided. Individual assets are clustered by group exposure. As much face value as possible is traditionally underwritten in the time permitted, recognizing...the encoded asset attributes in such a way so as to segment the portfolio into groups of similar assets . One such algorithm is Kmeans clustering. In an example, where three asset attributes, Unpaid Principal

...sample size is derived.

Table B provides an example output from a study of a group of 20
loans , with estimated (expected) recoveries between 20% and 30% of UPB,
and a range of LTPB...is a flow diagram illustrating a process 210 for
automated underwriting of segmentable financial instrument assets .
First clusters of financial instruments are defined 212 by common
attributes. An expert opinion 214 of value...

...selects and sets 220 the individual attributes to be used and then
classifies 222 individual assets into clusters . Cluster valuation
is applied 224 to each cluster asset. Using the cluster valuation, the
values are...

...is then supplied to the individual asset values in credit analyst table
136 for the assets from the clusters being adjusted in procedure 40
to produce adjusted credit analyst table 140. The process is...partial
underwriting and infer-red valuation. First, assets are sampled 242
according to risk. Second, assets are underwritten 244, and
valuations recorded. Third, market value clusters are formed 246, such as
by FCM, as described below. Fourth, regression models are built 248, for
the underwritten assets . A best model is selected 250, for the
underwritten assets from among those built 248 earlier. Sixth, the
counts for the selected models are calculated...

...240 are then placed in adjusted credit analyst table 140 (see Figure 3).
In sampling assets 242, underwriters use stratified random
sampling to select assets for detailed review. Strata are constructed
from collateral...

...a largely manual process in which expert
underwriters ascribe a notion of worth to collateral assets . The
underwritten valuations are stored in a master database table, such as
database 76 (shown in Figure...

...an analysis using a Classification And Regression Tree ("CART") based
model, which results in a grouping of UW assets by Collateral Usage
and Market Value
("CUMW) groups, using Previous Appraisal Amount ("PAA") as, the...shown
in Figure 3) performs this process. Model building 248 is used to assist
the underwriter in prioritizing assets for full underwriting 14 and
sample-based underwriting 34, as well as for inferential valuation.

The lower portion...behavior. Unsupervised learning step 208, employs a
fuzzy clustering method ("FCM") and knowledge engineering to group
assets automatically for valuation. FCM is a known method that has been
widely used and applied...one exemplary embodiment 25% of the assets and
60% of the face value of all assets . Full underwriting of these
assets is warranted due to their size and value. However, this
underwriting is fairly uniform for...

7/3,K/16   **(Item 11 from file: 349)**
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00816781   **Image available**
METHODS AND SYSTEMS FOR AUTOMATED INFERRED VALUATION OF CREDIT SCORING
PROCEDES ET SYSTEMES D'EVALUATION AUTOMATIQUE INFEREE DE PERFORMANCE DE
CREDIT

Fulltext Availability:
  Detailed Description
  Claims

Detailed Description
...   the seller of assets wants to optimize the value of the portfolio, and
  will sometimes group the assets in "tranches." The term "tranche" as
  used herein is not limited to foreign notes but...

...the time for submitting a bid is about to expire, the bidder will
  evaluate the loans underwritten at that time, and then attempt to
  extrapolate a value to the loans that have...

...and then use business judgment to make an inference as to the valuation
  of the assets not specifically underwritten . Given the lack of
  granularity on this inference, valuations are typically ascribed low
  values or...data reduction are used in valuing the third portion.

  As the process proceeds and more assets are underwritten , the number
  of assets in the first and second portions increase and the number of
  assets in the third...

...more and more defined. More specifically, the assets in the third
  portion are evaluated by grouping the assets into clusters having
  probability of value based on similarity to valuations of assets in the
  first and...computer network schematic.

  1 5 DETAILED DESCRIPTION OF THE INVENTION
  - Figurelisadiagram'10illustratingaknownprocessforvaluinga
  large portfolio of assets 12 through an underwriting cycle and
  through to making a bid for purchasing asset portfolio 12, for example,

in...

...an underwritten first portion 16 and an untouched remainder portion 18.
Before any of the assets are underwritten , first portion 16 is zero
percent and remainder portion 18 is one hundred percent of...

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before a bid is submitted for the purchase of asset portfolio. The team
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underwriters begin a fall underwrite 14 of individual assets in
portfolio 12 to produce a fully underwritten first portion 16 of assets
.. Underwriters also underwrite 34 a sample of assets in a second
portion 36 of portfolio 12, and a...so well known or so reliable that the
assets can be quickly and reliably fully underwritten or the assets
are marked to market such that there is very little variance associated
with the value...

...any full sampling group valuation I 1 8 required for bidding as
suggested by the grouping of assets in a tranche.

The number of assets in an underwriting sample grouping can be as
little as one to any number of assets. Partial sampling ...on an
ongoing, real time basis.

Supervised learning process 206 uses business rules to identify clusters
of assets having common aspects for valuation purposes. Unsupervised
learning process 208 uses feedback from prior data...of statistically
inferred valuation 142 by correlating to established criteria 80 in
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assets in sample underwritten second portion 36. Selected data 78
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described below. If the seller groups the assets , then grouping
according to seller groups or tranches is easily made and an appropriate
valuation 146 developed...the best method has been employed.

In order to provide the best forecast of asset value , assets are
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are...not homogeneous, a method to establish the
variability of cash flow recoveries is provided. Individual assets are
clustered by group exposure. As much face value as possible is
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in such a way so as to segment the portfolio into groups of similar
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automated underwriting of segmentable financial instrument assets .
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attributes. An expert opinion 214 of value...

...selects and sets 220 the individual attributes to be used and then
classifies 222 individual assets into clusters . Cluster valuation

is applied 224 to each cluster asset. Using the cluster valuation, the values are...

...is then supplied to the individual asset values in credit analyst table 136 for the assets from the clusters being adjusted in procedure 40 to produce adjusted credit analyst table 140. The process is...
...underwriting, partial underwriting and inferred valuation. First, assets are sampled 242 according to risk. Second, assets are underwritten 244, and valuations recorded. Third, market value clusters are formed 246, such as by FCM, as described below. Fourth, regression models are built 248, for the underwritten assets .

A best model is selected 250, for the underwritten assets from among those built 248 earlier. Sixth, the counts for the selected models are calculated...

...a manner weighted by the counts to predict individual values for , each of the non- underwritten assets . The individual asset values produced according to process 240 are then placed in adjusted credit analyst table 140 (see Figure 3).

In sampling assets 242, underwriters use stratified random sampling to
select assets for detailed review. Strata are constructed from collateral
...

...a largely manual process in which expert
underwriters ascribe a notion of worth to collateral assets . The underwritten valuations are stored in a master database table, such as database 76 (shown in Figure...

...an analysis using a Classification And Regression Tree ("CART") based model, which results in a grouping of UW assets by Collateral Usage and Market Value ("CUMV") groups, using Previous Appraisal Amount ("PAA") as the...shown in Figure 3) performs this process. Model building 248 is used to assist the underwriter in prioritizing assets for full underwriting 14 and sample-based underwriting 34, as well as for inferential valuation.

The lower portion...behavior. Unsupervised learning step 208, employs a fuzzy clustering method ("FCM") and knowledge engineering to group assets automatically for valuation. FCM is a known method that has been widely used and applied...one exemplary embodiment 25% of the assets and 60% of the face value of all assets . Full underwriting of these assets is warranted due to their size and value. However, this underwriting is fairly uniform for...

Claim
... ther comprising the steps of-. inputting clusters into the table, where clusters are defined as groups of assets that are characterized and segmented by their descriptive attributes;
inputting individual cluster recovery and credit...configured to:
upload and store clusters within the table (136), where clusters are defined as groups of assets that are characterized and segmented by their descriptive
attributes;
upload and store individual cluster recovery...programmed to:
upload and store clusters within the table (136), where clusters are defined as groups of assets that are characterized and segmented by their descriptive

```
attributes;
upload and store individual cluster recovery...
?
```